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Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

INFORMATION INPUT-OUTPUT DEVICE, INFORMATION INPUT-OUTPUT SYSTEM, MOBILE COMMUNICATION TERMINAL, AND INPUT-OUTPUT CONTROL UNIT

and invented by:

Takahiro Mizuguchi

IF A CONTINUATION APPLICATION, check appropriate box and supply requisite information: Continuation Divisional Continuation-in-part (CIP) of prior application No.: _____

Enclosed are:

Application Elements

1. Filing fee as calculated and transmitted as described below
2. Specification having 37 pages(s) and including the following:
 - a. Descriptive title of the invention
 - b. Cross references to related applications (*if applicable*)
 - c. Statement regarding Federally-sponsored research/development (*if applicable*)
 - d. Reference to microfiche appendix (*if applicable*)
 - e. Background of the invention
 - f. Brief summary of the invention
 - g. Brief description of the drawings (*if drawings filed*)
 - h. Detailed description
 - i. Claims as classified below
 - j. Abstract of the disclosure

Application Elements (continued)

3. Drawing(s) (when necessary as prescribed by 35 U.S.C. 113)
 Formal Informal Number of sheets: 10

4. Oath or Declaration

- Newly executed (original or copy) Unexecuted
- Copy from a prior application (37 C.F.R. 1.63(d)) *(for continuation/divisional applications only)*
- With Power of Attorney Without Power of Attorney

5. Incorporation by reference *(usable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. Computer program in microfiche

7. Genetic sequence submission *(if applicable, all must be included)*

- Paper copy
- Computer readable copy
- Statement verifying identical paper and computer readable copies

Accompanying Application

8. Assignment papers (*cover sheet & document(s)*)

9. 37 C.F.R. 3.73(b) statement (*when there is an assignee*)

10. English translation document (*if applicable*)

11. Information Disclosure Statement/PTO-1449 Copies of IDS citations

12. Preliminary Amendment

13. Acknowledgment postcard

14. Certified copy of priority document(s) (*if foreign priority is claimed*)

15. Certificate of Mailing

16. First Class Express Mail (Label No.: _____)

17. Small Entity statement(s) -- # submitted _____ (*if Small Entity status claimed*)

Accompanying Application (continued)

17. Additional enclosures (please identify below):

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The filing fee for this utility patent application is calculated and transmitted as follows:

Large Entity

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CLAIMS AS FILED					
For	# Filed	# Allowed	# Extra	Rate	Fee
Total Claims	18	- 20 =		x \$18.00	
Independent Claims	6	- 3 =	3	x \$78.00	\$234.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					
Other Fees (specify purpose):					
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INFORMATION INPUT-OUTPUT DEVICE, INFORMATION INPUT-OUTPUT
SYSTEM, MOBILE COMMUNICATION TERMINAL, AND INPUT-OUTPUT
CONTROL UNIT

5 FIELD OF THE INVENTION

The present invention relates to an information input-output device and an information input-output system which allows a user to retrieve information from a host computer using a mobile communication terminal. More particularly, 10 this invention relates to an information input-output device and an information input-output system which enables input or output of information after the user is authenticated.

BACKGROUND OF THE INVENTION

15 A conventional information input-output system is explained below. In recent years, portable information devices such as note PCs and PDAs (Personal Digital Assistants) and mobile communication terminals such as PHSs (Personal Handy-Phone System) and cellular phones have been widely used. 20 In association with the widespread use of these devices, the processing of creating documents or the processing of communications by electronic mail can easily be performed wherever the devices may be used. Further, by using a communication function provided in these devices, a variety of 25 services (e.g., services of banks (reference to balance, money

transfer to an account, or so), booking of tickets, or booking of airline tickets) can be provided from carriers over a network (communication line).

However, these conventional portable information devices 5 carry no printer to print out created documents and information obtained through the variety of services. Therefore, printout cannot easily be performed on the road, for example. To solve the problem, there has been proposed an information input-output system which allows a user of the portable information 10 device to instruct printout of desired information to a spot (printer) in a destination (the place where the user goes) specified by the user of the portable information device.

Fig. 11 is a flow chart showing the processing of information output in the information input-output system 15 described in JP, HEI 10-222527A. This chart shows the processing between a PDA and a service center that provides the service to print out desired information onto a specified spot in a destination. Fig. 11 specifically shows a case in which a user is provided with a travel information service.

20 The user of a PDA selects a travel information service out of a variety of services by input operation through the PDA (step S101). The user then inputs search/output request data indicating information for a destination where the user goes, namely a place of departure, a destination, a mode of 25 transportation, and a target device for data output, or so (step

S102) through the PDA, and transmits search/output demand information relating to this search/ output request data to a service center (step S103).

On the other hand, the service center receives the 5 search/output demand information (step S111) and checks a mode of transportation (step S112). For example, when the transportation mode is a car (step S112, vehicle), the service center searches geographical information from an existing database based on the simultaneously received information for 10 the place of departure and the destination, and edits a road map (step S113). When the transportation mode is a train (step S112, railway), the service center searches information for timetables from the existing database based on the simultaneously received information for the place of departure 15 and the destination, and edits a railway timetable covering from the place of departure to the destination (step S114).

The service center then performs the processing of creating information incidental to the information edited at step S113 and step S114 (step S115). At this step, the service 20 center creates information for sightseeing around the destination and weather information. The service center then specifies a spot (a printer or a display of the PDA), to which the information created so far is to be output (step S116), based on the target device for data output specified by the user (step 25 S104).

For example, when the display of the PDA is specified (step S104: user's device, step S116: PDA), the service center transmits the previously created information to the PDA (step S117), and the PDA then outputs the information onto the display

5 (step S105).

On the other hand, when the printer is specified (step S104: another printer, step S116: another printer), the service center searches various types of facilities (e.g., convenience stores, gas stations, SA, or tollbooths on a highway) where the

10 same type of printer as that stored in the database is located, creates a list of candidates for a target device for output, and transmits the list to the PDA (step S118). The PDA then displays the list on its screen (step S106), the user selects a target device for output of the candidates, and transmits the

15 information for the specified target device for output (step S107). At the last step, the service center receives the information for the specified target device for output (step S119), and controls so as to permit the printer, that is specified as a target device for output, to print out the

20 information such as the map or the timetable previously created (step S120).

As explained above, in the conventional information input-output system, even when the user of the portable information device (PDA or the like) is on the road, a target

25 device for output can selectively be changed according to

changes of a destination based on the service provided from the service center. Therefore, desired information can easily be output onto a printer installed in a specified location.

In the conventional information input-output system,
5 however, user authentication is not confirmed in an input-output control unit for a printer or so as an object for output. Therefore, printout becomes possible by anybody operating this terminal (a portable information device, or a mobile communication terminal such as a PHS or a cellular phone).
10 Namely, there has been a problem that reliability of security of information can not be ensured, because the user of the mobile communication terminal is not verified whether he or she is an authorized holder of this terminal.

15 SUMMARY OF THE INVENTION

It is an object of this invention to obtain an information input-output device, an information input-output system which allows a user of a mobile communication terminal to easily access information within a host computer that provides a
20 variety of services. Further, this information input-output system enables easy input or output of the information after the user of an input-output control unit is authenticated through operation with the terminal.

According to one aspect of this invention, by entering
25 an authentication code into an input-output control unit

through operation with a terminal or a keyboard, only the user of this terminal, who knows this particular authentication code, retrieves desired data stored in a service provision unit. Namely, only when the user of the terminal is verified as a holder 5 (subscriber) of this terminal, it is allowed to output the desired data. Therefore, with regard to the security of the information, higher reliability can be ensured as compared to that of the conventional method.

According to another aspect of this invention, by 10 entering an authentication code into an input-output control unit through operation with a terminal, only the user of this terminal, who knows this particular authentication code, outputs desired data through the terminal. Namely, only when the user of the terminal is verified as a holder (subscriber) 15 of this terminal, it is allowed to output the desired data. Therefore, with regard to the security of the information, higher reliability can be ensured as compared to that of the conventional method.

Further, the user of the terminal enters a user ID into 20 an input-output control unit through a terminal or a keyboard, and then transmits an output command (output job code) after the user is authenticated. In response to reception of the code, the input-output control unit provides controls for output. Therefore, the output job code is transmitted only when output 25 is required.

Further, with regard to the settlement of charging, charging can surely be settled by using any device such as a cash collection device into which a specified amount of cash is previously inserted, or electronic cash.

5 Further, since a map is displayed on the screen of the terminal, any of input-output control units, that are installed around the location where the user is, can efficiently be specified.

According to still another aspect of this invention, by
10 entering an authentication code into an input-output control unit through operation with its keyboard, only the user of this input-output control unit, who knows this particular authentication code, retrieves data within a service provision unit. Namely, only when the user of this input-output control
15 unit is verified as a subscriber who can access the data within the service provision unit, it is allowed to output the desired data. Therefore, with regard to the security of the information, high reliability can be ensured.

According to still another aspect of this invention, by
20 entering an authentication code into an input-output control unit through operation with its keyboard, only the user of this input-output control unit, who knows this particular authentication code, retrieves data within another input-output control unit. Namely, only when the user of the
25 specified input-output control unit is verified as a subscriber

who can access the data within another input-output control unit, it is allowed to output the desired data. Therefore, with regard to the security of the information, high reliability can be ensured.

5 Further, the input-output control unit has devices such as a printer and a storage device (memory) as external equipment for output.

Further, the input-output control unit has devices such as a sound-source data playback device and a storage device 10 (memory) as external equipment for output.

Further, the input-output control unit has devices such as a color printer, a digital camera, and a storage device (memory) as external equipment for output.

According to still another aspect of this invention, an 15 authentication code is entered into an input-output control unit through operation with a terminal. Therefore, only when the user of this terminal is verified as a holder (subscriber) of this terminal, it is allowed to output desired data.

According to still another aspect of this invention, with 20 regard to the settlement of charging, charging can surely be settled by using any device such as a cash collection device into which a specified amount of cash is previously inserted, or electronic cash.

Other objects and features of this invention will become 25 understood from the following description with reference to the

accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a configuration of a first embodiment of the
5 information input-output system according to this invention;

Fig. 2 shows a detailed configuration within an
input-output control unit 6 and a configuration around the
input-output control unit 6;

Fig. 3 shows a flow chart of the processing in a terminal
10 1 (addressing first control and second control);

Fig. 4 shows a flow chart of the processing in the terminal
1 (addressing third control) and the settlement of charging;

Fig. 5 shows an example of the operation for the first
control and the second control in the information input-output
15 system;

Fig. 6 shows the operation for the third control in the
information input-output system;

Fig. 7 shows an example of the operation for the first
control and the second control in the information input-output
20 system;

Fig. 8 shows a configuration of a second embodiment of
the information input-output system according to this
invention;

Fig. 9 shows a configuration of a third embodiment of the
25 information input-output system according to this invention;

Fig. 10 shows a configuration of a fourth embodiment of the information input-output system according to this invention; and

Fig. 11 shows a flow chart of the processing for output 5 of information in the conventional information input-output system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Preferred embodiments of the information input-output system according to this invention are explained in detail below 10 with reference to the drawings. It should be noted that the present invention is not limited by these embodiments.

Fig. 1 shows a configuration of a first embodiment of the information input-output system according to this invention.

15 In Fig. 1, reference numeral 1 represents a portable information device or a mobile communication terminal (henceforth, terminal 1) such as a PHS or a cellular phone. More specifically, the device or the terminal can get easy access to information in a host computer, that provides a variety of services, through 20 operation with its display screen. Further, each of them transmits an authentication code, that is used for verification whether a user operating the device can access the information, to an input-output control unit explained below. The cellular phone mentioned here employs a communication 25 system of FDMA (Frequency Division Multiple Access), TDMA (Time

Division Multiple Access), or CDMA (Code Division Multiple Access).

Reference numeral 2 represents a radio base station (henceforth, base station 2) that performs communications with the terminal 1 over a radio transmission path. Reference numeral 3 represents a mobile communication control station (or a computer in the mobile communication control station) that allocates a target device for connection according to a destination of transmission from the terminal 1. Reference numeral 4 represents a host computer that has a database relating to services that can be provided to the user of the terminal 1. Reference numeral 5 represents an input-output gateway server that stores data sent from the host computer 4 and transmits the data to an external device connected to the server through a line (a general telephone line, an ISDN line, or a private line). Reference numeral 6 represents an input-output control unit that controls an external device (printer, or so) based on the data from the input-output gateway server 5.

In the input-output control unit 6 of this embodiment, the term "input" indicates entry of information from an input device such as a scanner and a digital camera, and wired or wireless external communication equipment. The term "output" indicates output of information to a printer, a recording medium, an image processor, a sound-source data playback device, and

wired or wireless external communication equipment. The data from the host computer 4 includes text data (newspapers or publications, etc.), binary data, facsimile data, image data (photos, video, etc.), or sound source data. The input-output 5 control unit 6 is installed in a plurality of locations in order to support the mobile terminal 1. Therefore, in this embodiment, desired data is output to any of the input-output control units located around the destination where the user goes according to changes of the destination.

10 Fig. 2 shows a detailed configuration within the input-output control unit 6 and a configuration around the input-output control unit 6. In Fig. 2, reference numeral 61 represents a control section that controls operation of the input-output control unit 6. Reference numeral 62 represents 15 a communication interface that performs data transaction with the input-output gateway server 5, 63 a write/read interface to store data in an FD and an MO, or the like, and 64 a portable interface that performs communications with the terminal 1. Reference numeral 65 represents a printer interface connected 20 to a printer (or any other external device for output of information), and 66 a scanner interface connected to a scanner (or any other external device for entry of information).

25 Operation of the information input-output system based on the above configuration is explained below with reference to Fig. 3, Fig. 4, Fig. 5, and Fig. 6. Fig. 3 shows a flow chart

of the processing in the terminal 1 (addressing first control and second control), and Fig. 5 shows an example of the operation for the first control and the second control in the information input-output system. More specifically, Fig. 5 shows 5 operations since the user of the terminal 1 operates its display until information within a host computer 4, that provides a variety of services, is transmitted to the input-output gateway server 5.

Fig. 4 shows a flow chart of the processing in the terminal 10 1 (addressing third control) and the settlement of charging. Fig. 6 shows the operation for the third control in the information input-output system. More specifically, Fig. 6 shows operations, by operating the terminal 1, since the input-output gateway server 5 transmits the information stored 15 in the server 5 to the input-output control unit 6 after the user of the terminal 1 is authenticated until the input-output control unit 6 outputs the received information to an external device such as a printer.

As the first control, the user of the terminal 1 selects 20 desired processing (main options: access to bank, purchase of a ticket or an airline ticket, etc.) out of menu options appearing on the screen (step S1), and then proceeds to the next operation (step S2, Yes). If the user does not proceed to the next operation (Step S2, No), the processing is terminated at 25 this point in time. The processing here comes to the point that

the terminal 1 and the host computer 4 communicate with each other via the base station 2 and the mobile communication control station, and from then on, the menu option under the control of the host computer 4 is selected in the terminal 1.

5 As the second control, the user of the terminal 1 selects desired processing (sub-options: information to be output and displayed, or information to be output and printed out, etc.) out of the menu options appearing on the screen controlled from the host computer 4 (step S3), and proceeds to the next operation
10 (step S4, Yes).

At the same time, an address of the input-output gateway server 5 corresponding to "printout" as one of the menu options, for example, is transmitted from the terminal 1 (step S21). The host computer 4 receives this address, and then requests an
15 output job code, that is required when printout is performed, to the input-output gateway server 5 corresponding to the address (step S22).

The input-output gateway server 5 receives this request, and then issues the output job code corresponding to the
20 processing of printout (step S23). The host computer 4 receives the output job code, and then transmits a URL (Uniform Resource Locator) indicating a site, where the information to be output is stored, to the input-output gateway server 5 (step S24). As the last processing in the second control, the input-output
25 gateway server 5 reads out data to be output from a database

based on the URL, and temporarily stores the data (step S25).

Whereas, the host computer 4 controls so as to display information such as the number of sheets for printout, the data amounts, and the output job code onto the terminal 1 (step S26).

5 If the operation is stopped during the processing at step S4 (step S4, No), for example, the processing is terminated at this point in time.

As the third control, the user of the terminal 1 enters a user ID (e.g., secret number or own telephone number) into 10 the input-output control unit 6 through operation with the terminal 1 or operation of a keyboard 13 (step S11, step S31).

The input-output control unit 6 receives the user ID and then transmits the received user ID to the input-output gateway 15 server 5 (step S32). The input-output gateway server 5 compares the received ID with the ID previously stored inside the server

5. When these two IDs match (step S12, Yes), the input-output gateway server 5 authenticates that the user of the terminal 1 can access the previously stored data (step S33). If these 20 two fail to match (step S12, No), the input-output gateway server 5 provides controls for displaying an error message onto the terminal 1 (step S13), and the user inputs the user ID again

(step S11).

The user of the terminal 1, who has been authenticated by the input-output gateway server 5, transmits the output job 25 code previously displayed under the second control to the

input-output control unit 6 through operation with the terminal 1 or operation of the keyboard 13 (step S14, step S34). The input-output control unit 6 then transmits the received output job code to the input-output gateway server 5 (step S35).

5 The input-output gateway server 5 compares the received output job code with the output job code received under the second control. When these two codes match (step S15, Yes), the input-output control unit 6 performs the settlement of charging involved by the output processing (step S17). As the 10 last processing in the third control, the input-output control unit 6 reads out the data previously stored in the input-output gateway server 5, and outputs (prints) the data onto an external device such as a printer installed in any location the nearest to the location where the user is (step S18, step S36). In order 15 to specify any printer installed in the nearest location, a route to the location may also be displayed on the terminal 1. Further, if these two fail to match in the processing at step S15 (step S15, No), the input-output control unit 6 controls so as to display an error message on the terminal 1 (step S16), 20 and the user inputs again the output job code (step S14).

Although the user ID is input through operation with the terminal 1 or operation of the keyboard in this embodiment, in addition to this method, the user ID may be input using the magnetic card or the IC card shown in Fig. 2. Further, for the 25 settlement of charging in this embodiment, a cash collection

device, into which a specified amount of cash is previously inserted, may be used, or electronic cash may also be used. Under the second control in this embodiment, although data as an object to be output is captured into the input-output gateway server 5 based on the URL, as shown in Fig. 6, a capturing method is not limited to this method. That is, instead of using the URL, the host computer 4 may directly transmit data as an object to be output to the input-output gateway server 5 through operation from the terminal 1, as shown in Fig. 7. The mobile communication control station 3 and the host computer 4 may be integrated into one configuration.

According to this embodiment, by entering the user ID into the input-output control unit 6 through operation with the terminal 1 or operation of the keyboard 13, only the user of the terminal 1, who knows this particular ID, is allowed to output (print) desired data stored in the input-output gateway server 5. Namely, only when the user of the terminal 1 is verified as a holder (subscriber) of the terminal 1, it is allowed to output the desired data. Therefore, with regard to the security of the information, higher reliability can be ensured as compared to that of the conventional method. Accordingly, in this embodiment, the user of the terminal 1 can easily access the information within the host computer 4 that provides a variety of services. Further, the information can easily be output onto an external device while the security of

the information can be ensured.

According to this embodiment, the user of the terminal 1 inputs the user ID into the input-output control unit 6 from the terminal 1 or the keyboard 13, and transmits the output job 5 code after the user is authenticated. In response to reception of this code, the input-output control unit 6 provides controls for output. Therefore, in this embodiment, an output job code is transmitted only when output is required. As a result, a communication fee of waste is eliminated.

10 Further, according to this embodiment, with regard to the settlement of charging, charging can surely be settled by using any device such as a cash collection device 15 into which a specified amount of cash is previously inserted, or electronic cash.

15 Fig. 8 shows a configuration of a second embodiment of the information input-output system according to this invention. In Fig. 8, reference numeral 1a represents a portable information device or a mobile communication terminal (henceforth, terminal 1) such as a PHS or a cellular phone, the 20 same as that of the first embodiment. More specifically, the device or the terminal can get easy access to information in a host computer, that provides a variety of services, through operation with its display screen. Further, each of them transmits an authentication code, that is used for verification 25 whether a user operating the device can access the information,

to an input-output control unit explained below. A different point of the terminal 1a from the terminal 1 of the first embodiment is that, when the processing of output (printing) is performed, for example, the terminal 1a directly receives 5 data to be output from a host computer and transmits the data to an input-output control unit.

Reference numeral 4a represents a host computer having a database relating to services that can be provided to the user of the terminal 1a, and transmits the data to be output to the 10 terminal 1a via the mobile communication control station 3 and the base station 2. Reference numeral 5a represents an input-output gateway server that performs user authentication with the input-output control unit 6 connected to the server through a line (a general telephone line, an ISDN line, or a 15 private line). The rest of the configuration is the same as that of the previously explained first embodiment. Therefore, the same signs are assigned to the sections corresponding to those in the first embodiment, and explanation of the sections are omitted.

20 Operation of the information input-output system based on the above configuration is explained below. The first control is the same as that of the first embodiment, explanation of the control is omitted. As the second control, the user of the terminal 1a selects desired processing (sub-options: 25 information to be output and displayed, or information to be

output and printed out, etc.) out of the menu options appearing on the screen controlled from the host computer 4a.

At the same time, a command corresponding to "printout" as one of the menu options, for example, is transmitted from 5 the terminal 1a. The host computer 4a receives this command, and then reads out data to be output from the database, and transmits the data to the terminal 1a. At the last step, the host computer 4a transmits information such as the number of sheets for printout and the data amounts to the terminal 1a.

10 As the third control, the user of the terminal 1a enters a user ID (e.g., secret number or own telephone number) into the input-output control unit 6 through operation with the terminal 1 or operation of the keyboard 13. The input-output control unit 6 receives the user ID and then transmits the 15 received user ID to the input-output gateway server 5a. The input-output gateway server 5a compares the received ID with the ID previously stored inside the server 5a. When these two IDs match, the input-output gateway server 5a authenticates that the user of the terminal 1a can access the previously stored 20 data. If these two fail to match, the input-output gateway server 5a provides controls for displaying an error message onto the terminal 1a, and the user inputs the user ID again.

The user of the terminal 1a, who has been authenticated by the input-output gateway server 5a, transmits the previously 25 stored data under the second control to the input-output control

unit 6 through operation with the terminal 1a. The input-output control unit 6 then performs the settlement of charging involved by the processing for output (in the same manner as that of the first embodiment). As the last processing of the third control,
5 the input-output control unit 6 then outputs (prints) the data from the terminal 1a onto an external device such as a printer installed near the location where the user is. In this embodiment, the processing for user authentication is not limited to the processing as explained above, but the processing
10 may be performed by using the method explained in the first embodiment.

According to this embodiment as explained above, by entering a user ID into the input-output control unit 6 through operation with the terminal 1a, only the user of the terminal 1a, who knows this particular ID, is allowed to output (print out) desired data. Namely, only when the user of the terminal 1a is verified as a holder (subscriber) of the terminal 1a, it is allowed to output the desired data. Therefore, with regard to the security of the information, higher reliability can be
15 ensured as compared to that of the conventional method. Accordingly, in this embodiment, the user of the terminal 1a can easily access the information within the host computer 4a that provides a variety of services. Further, the information can easily be output onto an external device while the security
20 of the information can be ensured.

According to this embodiment, the user of the terminal 1a enters the user ID into the input-output control unit 6 from the terminal 1a or the keyboard 13, and transmits desired data after the user is authenticated. In response to reception of 5 the data, the input-output control unit 6 provides controls for output. Therefore, in this embodiment, the desired data is transmitted only when output is required. As a result, a communication fee of waste is eliminated.

Further, according to this embodiment, with regard to the 10 settlement of charging, charging can surely be settled by using any device such as a cash collection device 15 into which a specified amount of cash is previously inserted, or electronic cash.

Fig. 9 shows a configuration of a third embodiment of the 15 information input-output system according to this invention. The operation of each section provided in Fig. 9 is the same as that of the first embodiment. Therefore, the same signs are assigned to the sections, and explanation of the sections are omitted.

20 Operation of the information input-output system based on the above configuration is explained below. In this embodiment, when data within the host computer 4 is to be output, a user ID (e.g., secret number) is entered from the input-output control unit 6 to the input-output gateway server 5 through 25 operation with its keyboard 13. In response to reception of

the ID, the input-output gateway server 5 compares the received ID with the ID previously stored inside the server 5. When these two IDs match, the input-output gateway server 5 authenticates that the user of the input-output control unit 6 can access the 5 data within the host computer 4. If these two fail to match, the input-output gateway server 5 provides controls for displaying an error message onto the input-output control unit 6, and the user inputs the user ID again.

The user of the input-output control unit 6, who has been 10 authenticated by the input-output gateway server 5, requests desired data to the input-output gateway server 5 through operation with its keyboard 13. The input-output gateway server 5 then reads out data within the host computer and provides controls for transmitting the data to the input-output 15 control unit 6. At the last step, the input-output control unit 6 outputs (prints) the received data onto an external device such as a printer installed near the location where the user is. Although the user ID is input through operation with the keyboard 13 in this embodiment, in addition to this method, the 20 user ID may be input using the magnetic card or the IC card shown in Fig. 2.

According to this embodiment as explained above, by entering a user ID into the input-output control unit 6 through operation with its keyboard 13, only the user of the input- 25 output control unit 6, who knows this particular user ID, is

allowed to retrieve (print) data within the host computer 4. Namely, only when the user of the input-output control unit 6 is verified as a subscriber who can access the data within the host computer 4, it is allowed to output the desired data.

5 Therefore, with regard to the security of the information, high reliability can be ensured. Accordingly, in this embodiment, the user of the input-output control unit 6 can easily access the information within the host computer 4 that provides a variety of services. Further, the information can easily be

10 output onto an external device while the security of the information can be ensured.

Fig. 10 shows a configuration of a fourth embodiment of the information input-output system according to this invention. Operation of input-output control units 6a and 6b and the

15 input-output gateway server 5 provided in Fig. 10 is the same as that of the first embodiment previously explained.

Operation of the information input-output system based on the above configuration is explained below. In this embodiment, the operation when data captured by a scanner 12 into the input-output control unit 6b is to be printed out by the input-output control unit 6a is explained. A user ID (e.g., secret number) is input from the input-output control unit 6a to the input-output gateway server 5 through operation with its keyboard 13. In response to reception of the ID, the

20 25 input-output gateway server 5 compares the received ID with the

10 ID previously stored inside the server 5. When these two IDs
15 match, the input-output gateway server 5 authenticates that the
20 user of the input-output control unit 6 can access the data
25 within the input-output control unit 6b. If these two fail to
30 match, the input-output gateway server 5 provides controls for
35 displaying an error message onto the input-output control unit
40 45 50 55 60 65 6a, and the user inputs the user ID again.

60 The user of the input-output control unit 6a, who has been
65 authenticated by the input-output gateway server 5, requests
70 desired data to the input-output gateway server 5 through
75 operation with its keyboard 13. The input-output gateway
80 server 5 then reads out the data within the input-output control
85 unit 6b and provides controls for transmitting the data to the
90 input-output control unit 6a. At the last step, the input-
95 output control unit 6a outputs (prints) the received data onto
100 an external device such as a printer installed near the location
105 where the user is. Although the user ID is input through
110 operation with the keyboard 13 in this embodiment, in addition
115 to this method, the user ID may be input using the magnetic card
120 or the IC card shown in Fig. 2.

125 According to this embodiment as explained above, by
130 entering a user ID into the input-output control unit 6a through
135 operation with its keyboard 13, only the user of the input-
140 output control unit 6a, who knows this particular user ID, is
145 allowed to retrieve (print) data within the input-output

control unit 6b. Namely, only when the user of the input-output control unit 6a is verified as a subscriber who can access the data within the input-output control unit 6b, it is allowed to output the desired data. Therefore, with regard to the security of the information, high reliability can be ensured.

5 Accordingly, in this embodiment, the user of the input-output control unit 6a can easily access the information within the input-output control unit 6b. Further, the information can easily be output onto an external device while the security of

10 the information can be ensured.

As explained above, according to one aspect of this invention, by entering an authentication code into the input-output control unit through operation with a terminal or its keyboard, only the user of this terminal, who knows this particular authentication code, retrieves desired data stored in a service provision unit. Namely, only when the user of the terminal is verified as a holder (subscriber) of this terminal, it is allowed to output the desired data. Therefore, with regard to the security of the information, higher reliability can be ensured as compared to that of the conventional method.

15 Accordingly, it is possible to obtain an information input-output system which allows the user of the terminal to easily access information within the service provision unit, and further enables easy output of the information onto an external

20 device while the security of the information can be ensured.

25

According to another aspect of this invention, by entering an authentication code into the input-output control unit through operation with a terminal, only the user of this terminal, who knows this particular authentication code, 5 retrieves desired data through the terminal. Namely, only when the user of the terminal is verified as a holder (subscriber) of this terminal, it is allowed to output the desired data. Therefore, with regard to the security of the information, higher reliability can be ensured as compared to that of the 10 conventional method. Accordingly, it is possible to obtain an information input-output system which allows the user of the terminal to easily access information within the service provision unit, and further enables easy output of the information onto an external device while the security of the 15 information can be ensured.

Further, the user of a terminal enters a user ID into the input-output control unit through the terminal or its keyboard, and then transmits an output command (output job code) after the user is authenticated. In response to reception of this 20 code, the input-output control unit provides controls for output. Therefore, the output job code is transmitted only when output is required. As a result, a communication fee of waste can be eliminated.

Further, with regard to the settlement of charging, 25 charging can surely be settled by using any device such as a

cash collection device into which a specified amount of cash is previously inserted, or electronic cash.

Further, since a map is displayed on the screen of the terminal, any of input-output control units, that are installed 5 around the location where the user is, can efficiently be specified.

According to still another aspect of this invention, by entering an authentication code into the input-output control unit through operation with its keyboard, only the user of this 10 input-output control unit, who knows this particular authentication code, retrieves data within a service provision unit. Namely, only when the user of this input-output control unit is verified as a subscriber who can access the data within the service provision unit, it is allowed to output the desired 15 data. Therefore, with regard to the security of the information, high reliability can be ensured. Accordingly, it is possible to obtain an information input-output system which allows the user of the input-output control unit to easily access 20 information within the service provision unit, and further enables easy output of the information onto an external device while the security of the information can be ensured.

According to still another aspect of this invention, by entering an authentication code into the input-output control unit through operation with its keyboard, only the user of this 25 input-output control unit, who knows this particular

authentication code, retrieves data within another input-output control unit. Namely, only when the user of the specified input-output control unit is verified as a subscriber who can access the data within another input-output control unit, 5 it is allowed to output the desired data. Therefore, with regard to the security of the information, high reliability can be ensured. Accordingly, it is possible to obtain an information input-output system which allows the user of the specified input-output control unit to easily access 10 information within another input-output control unit, and further enables easy output of the information onto an external device while the security of the information can be ensured.

Further, the input-output control unit has devices such as a printer and a storage device (memory) as external equipment 15 for output. Accordingly, articles can immediately be read on a retrieved newspaper or publication, and further the retrieved newspaper or publication can be stored.

Further, the input-output control unit has devices such as a sound-source data playback device and a storage device 20 (memory) as external equipment for output. Accordingly, music can immediately be played back from received sound source data, and further the sound source data can be stored.

Further, the input-output control unit has devices such as a color printer, a digital camera, and a storage device 25 (memory) as external equipment for output. Accordingly,

received photos or video can immediately be reproduced, and further the photos and the video can be stored.

According to still another aspect of this invention, an authentication code is entered into an input-output control unit through operation with a terminal. Accordingly, only when the user of this terminal is verified as a holder (subscriber) of this terminal, it is allowed to output desired data. Therefore, with regard to the security of the information, high reliability can be ensured.

According to still another aspect of this invention, with regard to the settlement of charging, charging can surely be settled by using any device such as a cash collection device into which a specified amount of cash is previously inserted, or electronic cash.

The present document incorporates by reference the entire contents of Japanese priority documents, 11-203857 filed in Japan on July 16, 1999.

Although the invention has been described with respect to a specific embodiment for a complete and clear disclosure, the appended claims are not to be thus limited but are to be construed as embodying all modifications and alternative constructions that may occur to one skilled in the art which fairly fall within the basic teaching herein set forth.

WHAT IS CLAIMED IS:

1. An information input-output device comprising:

a service provision unit which has a database relating to services that can be provided to a subscriber, and verifies whether a person trying to access the database is a subscriber who can be provided with the variety of services; and

an input-output control unit which receives data from said service provision unit and outputs the data, wherein data in the database is read out through operation from said input-output control unit; and

an authentication code is entered into said input-output control unit from which the data is desired to be output, and when the person is authenticated by said service provision unit as a subscriber who can be provided with the service, said input-output control unit receives the data and then outputs the data.

2. The information input-output device according to claim

1, wherein the data to be output is data relating to a newspaper or a publication.

3. The information input-output device according to claim 1, wherein the data to be output is sound source data.

4. The information input-output device according to claim 1, wherein the data to be output is static image data and moving picture data.

5 5. An information input-output device comprising:
a plurality of input-output control units which allow data captured by a data input device to be entered, and allow the data captured inside the device to be output onto a data output device; and
10 a verification unit that verifies whether the user of said plurality of input-output control units is a subscriber who is allowed to handle communications between a plurality of input-output control units, wherein
an authentication code is entered into a specified
15 input-output control unit from which data is desired to be output, and when the user is authenticated by said verification unit as a subscriber who is allowed to handle communications between the input-output control units, the user receives data from a desired input-output control unit, and then the data is
20 output.

6. The information input-output device according to claim 5, wherein the data to be output is data relating to a newspaper or a publication.

7. The information input-output device according to claim
5, wherein the data to be output is sound source data.

8. The information input-output device according to claim
5, wherein the data to be output is static image data and moving
picture data.

9. An information input-output system comprising:

10 a mobile communication terminal;
a service provision unit which performs communications
with said terminal over a radio transmission line, has a
database relating to services that can be provided to a user
of said terminal, and verifies whether said user is a subscriber
who can be provided with the variety of services; and

15 an input-output control unit which receives data from
said service provision unit over an established line and outputs
the data, wherein

20 communication between said terminal and said service
provision unit is established, and then data in the database
is read out through operation from said terminal; and

25 an authentication code is entered into said input-output
control unit from which the data is desired to be output, and
when the user is authenticated by said service provision unit
as a subscriber who can be provided with the service, said
input-output control unit receives the data at a predetermined

timing and then outputs the data.

10. The information input-output system according to claim
9, wherein said input-output control unit receives the data when
5 an output command is input after the user is authenticated, and
then outputs the data.

11. The information input-output system according to claim
10, wherein charging is settled by using any device such as a
10 cash collection device into which a specified amount of cash
is previously inserted, or electronic cash such as an IC card
or a magnetic card.

12. The information input-output system according to claim
15 10, wherein a route to the location where said input-output
control unit is installed is displayed on said terminal.

13. An information input-output system comprising:
a mobile communication terminal;
20 a service provision unit which performs communications
with said terminal over a radio transmission line and has a
database relating to services that can be provided to a user
of said terminal;
a verification unit that verifies whether the user of said
25 terminal is a subscriber who can be provided with the variety

of services; and

an input-output control unit which receives data within said service provision unit from said terminal and outputs the data, wherein

5 communication between said terminal and said service provision unit is established, and then data in the database is read out through operation from said terminal; and

an authentication code is entered into said input-output control unit from which the data is desired to be output, and
10 when the user is authenticated by said verification unit as a subscriber who can be provided with the service, said input-output control unit receives the data at a predetermined timing and then outputs the data.

15 14. The information input-output system according to claim 13, wherein said input-output control unit receives the data when an output command is input after the user is authenticated, and then outputs the data.

20 15. The information input-output system according to claim 14, wherein charging is settled by using any device such as a cash collection device into which a specified amount of cash is previously inserted, or electronic cash such as an IC card or a magnetic card.

16. The information input-output system according to claim
14, wherein a route to the location where said input-output
control unit is installed is displayed on said terminal.

5 17. A mobile communication terminal through which an
authentication code used for user authentication is input into
an input-output control unit, from which data is desired to be
output, over a radio transmission line or by an established
cable.

10
18. An input-output control unit which receives data from a
mobile communication terminal when an output command is input,
and at the same time starts the settlement of charging by using
any device such as a cash collection device into which a
15 specified amount of cash is previously inserted, or electronic
cash such as an IC card or a magnetic card.

ABSTRACT OF THE DISCLOSURE

An information input-output system comprises a mobile communication terminal, and a host computer that performs communications with the terminal over a radio transmission line

5 and has a database relating to services that can be provided to the user of the terminal. This system also comprises an input-output gateway server that verifies whether the user is a subscriber who can be provided with a variety of services, and an input-output control unit that receives data from the

10 database over an established line and then outputs the data.

CONFIDENTIALITY REQUEST FORM
1. (a) (1) (b) (6) (c) (1) (b) (7) (E) (b) (7) (F)

FIG.1

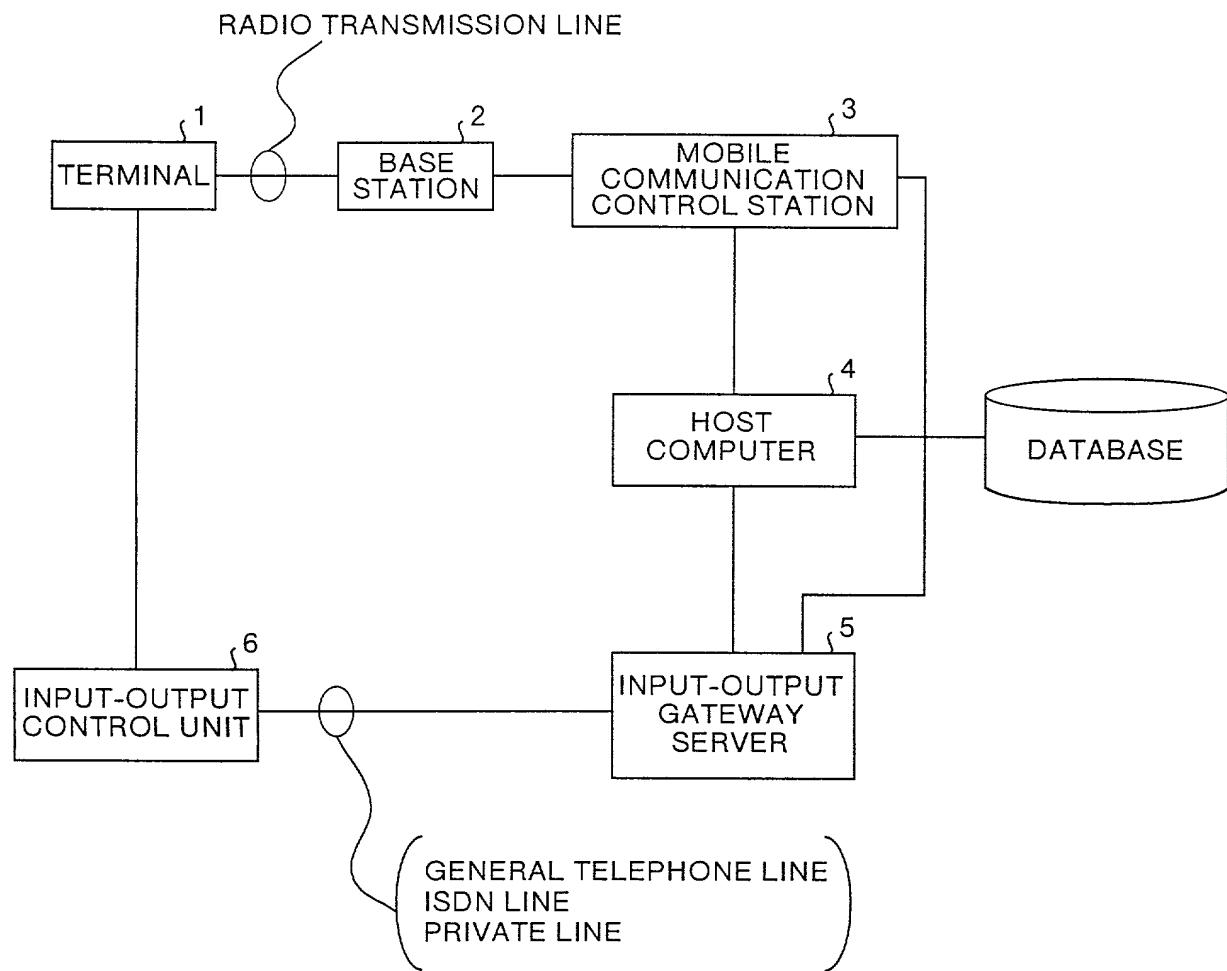


FIG.2

2/10

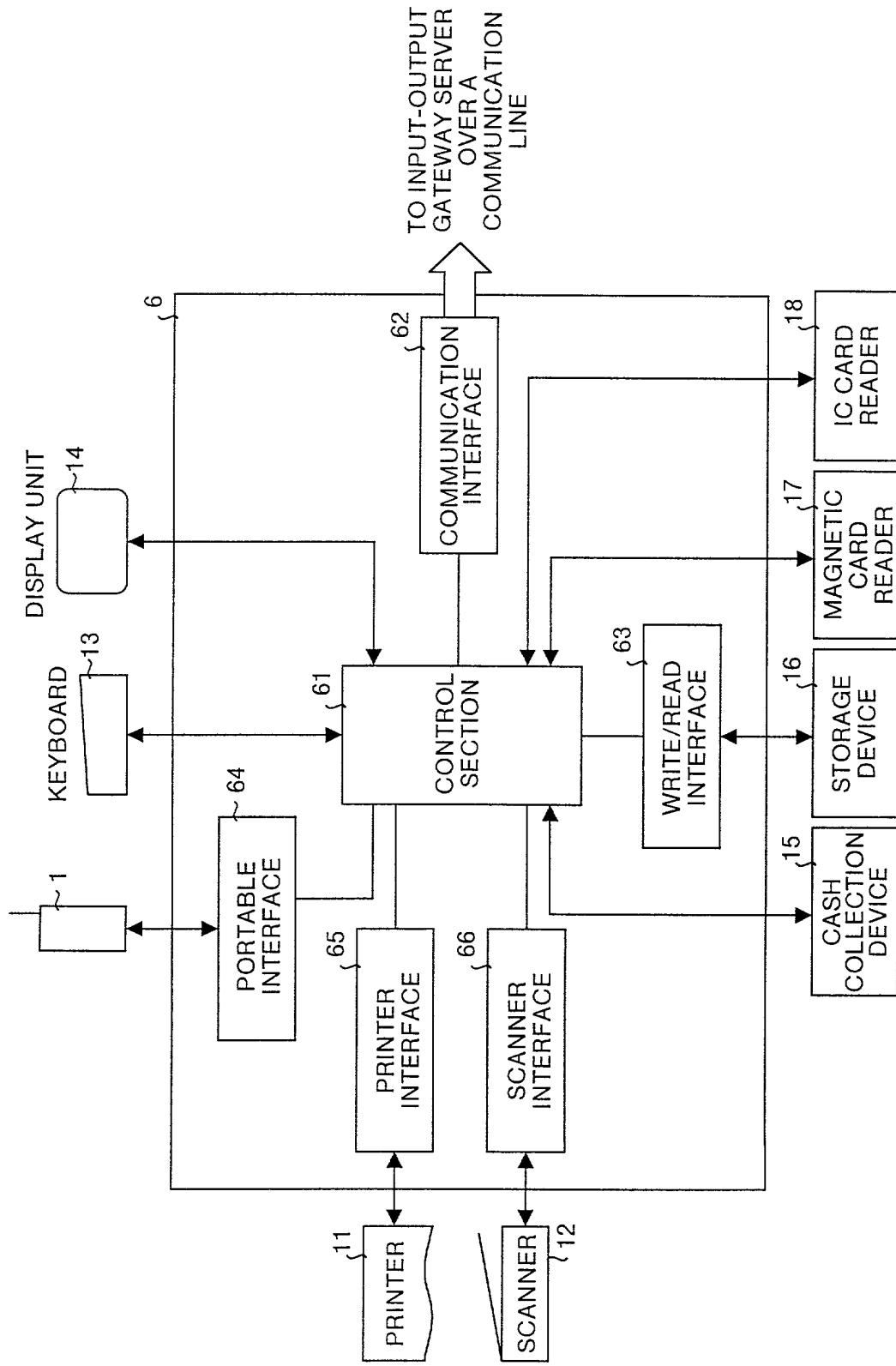


FIG.3

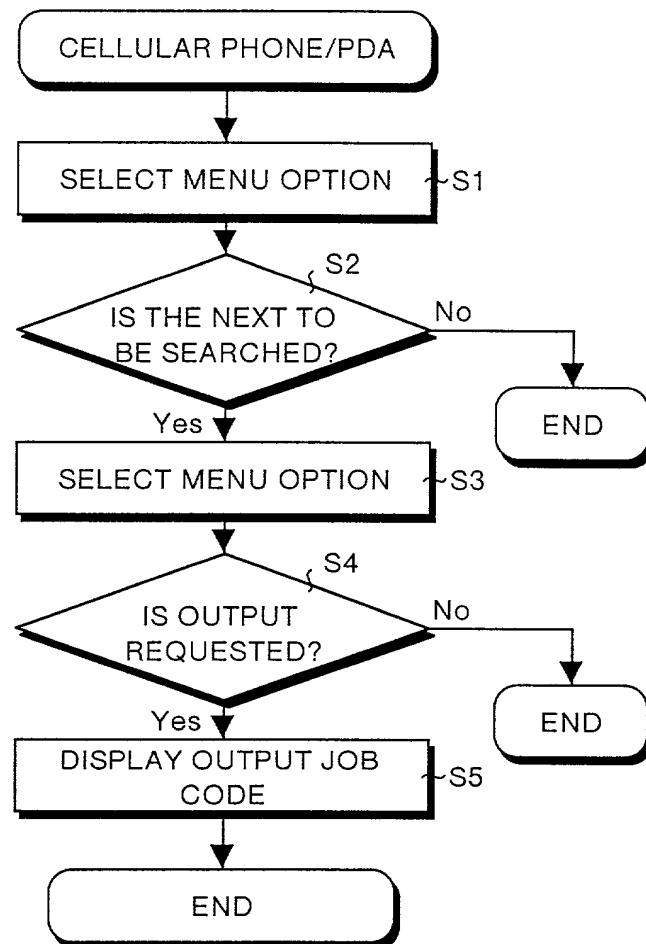


FIG.4

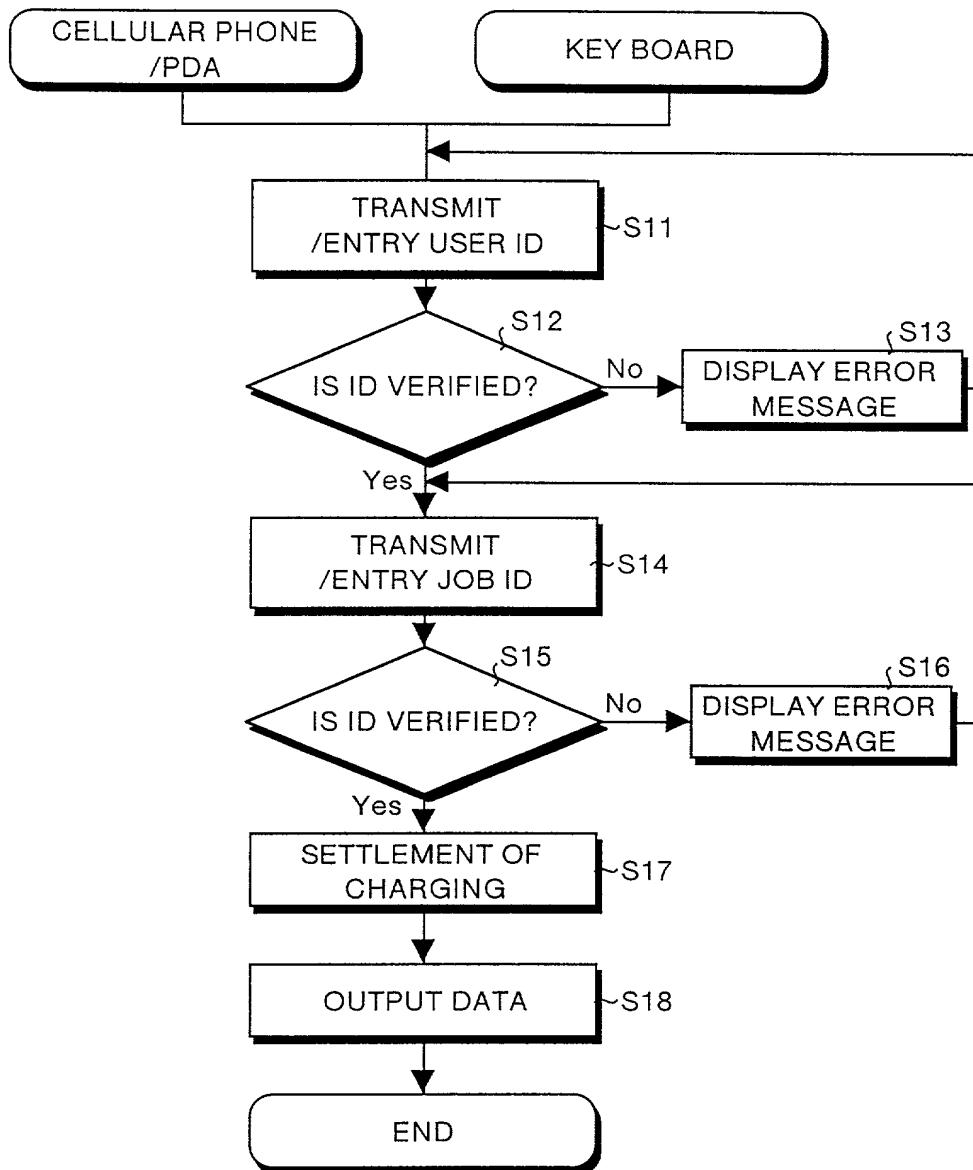


FIG.5

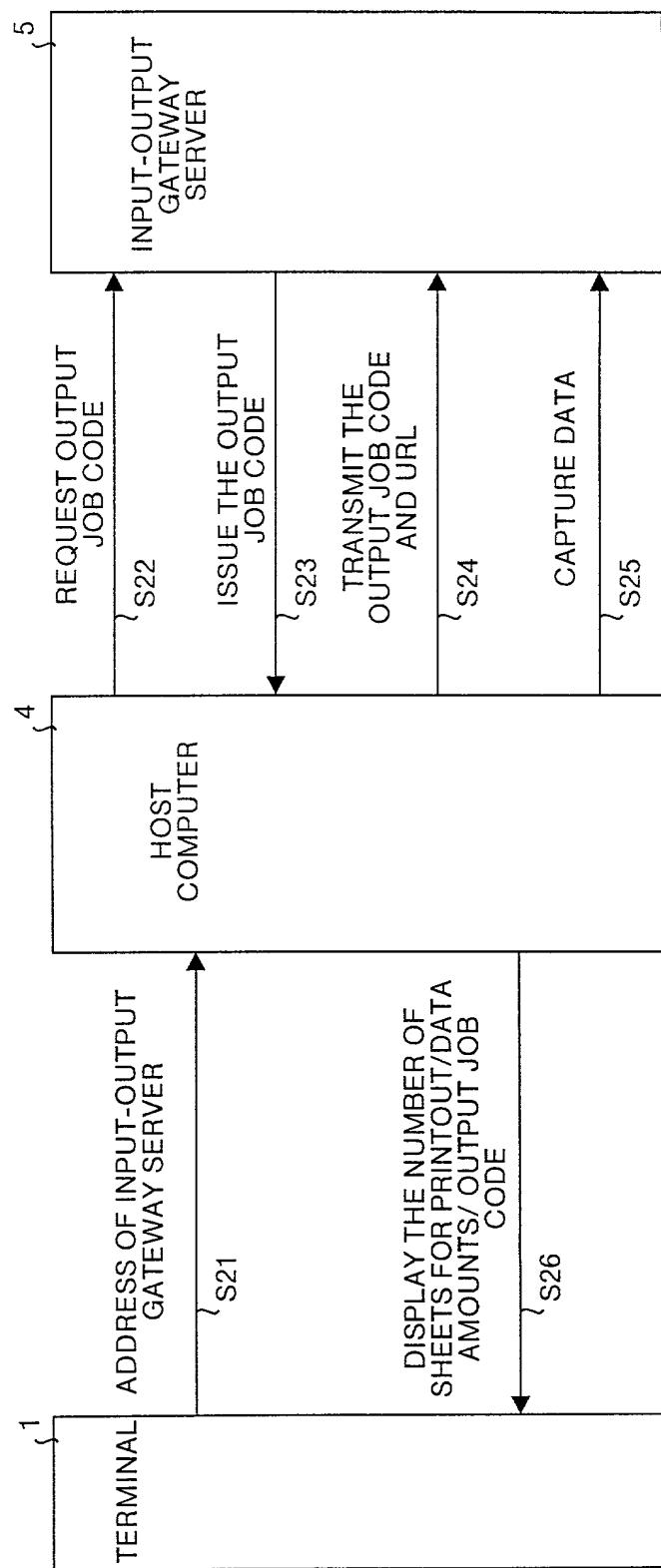


FIG.6

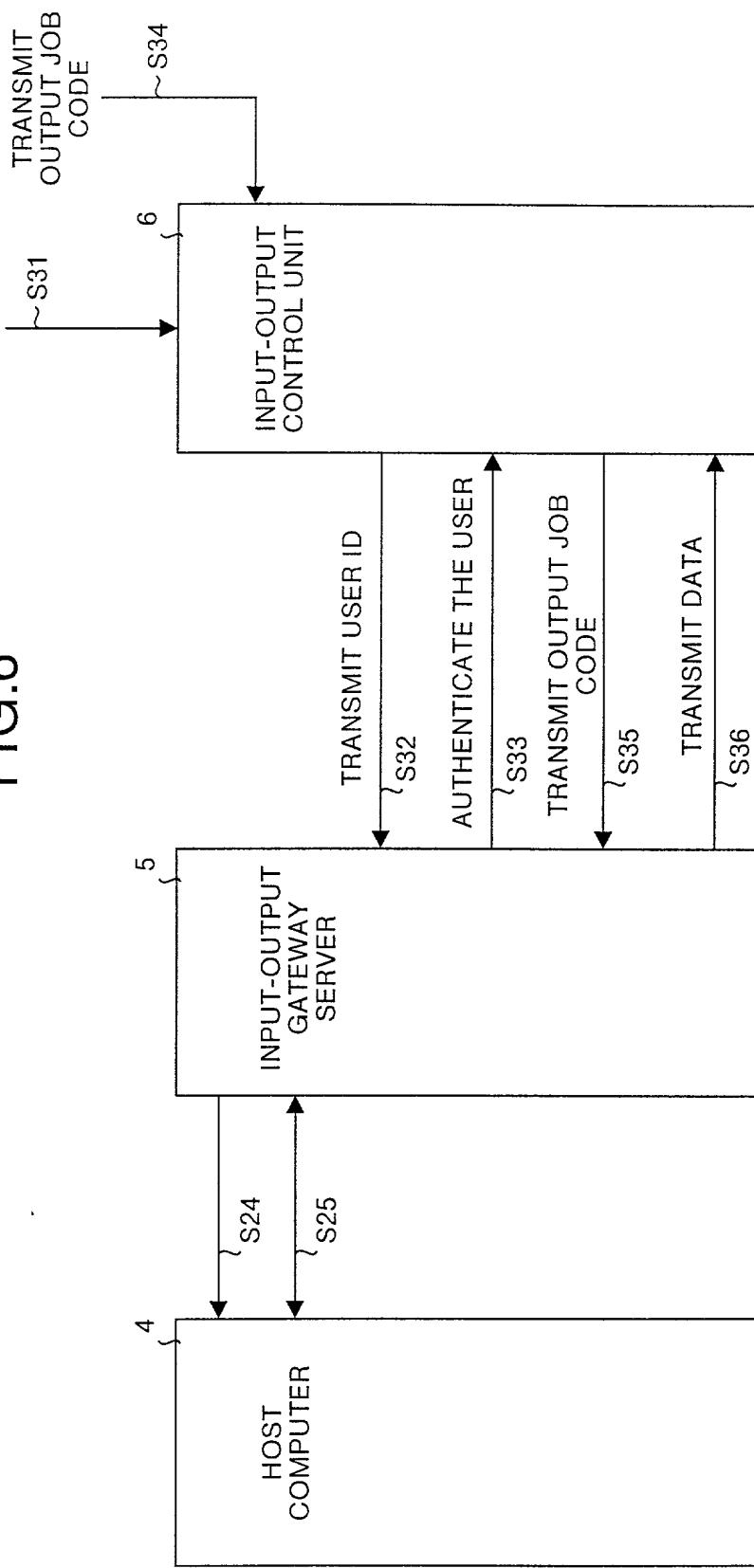


FIG.7

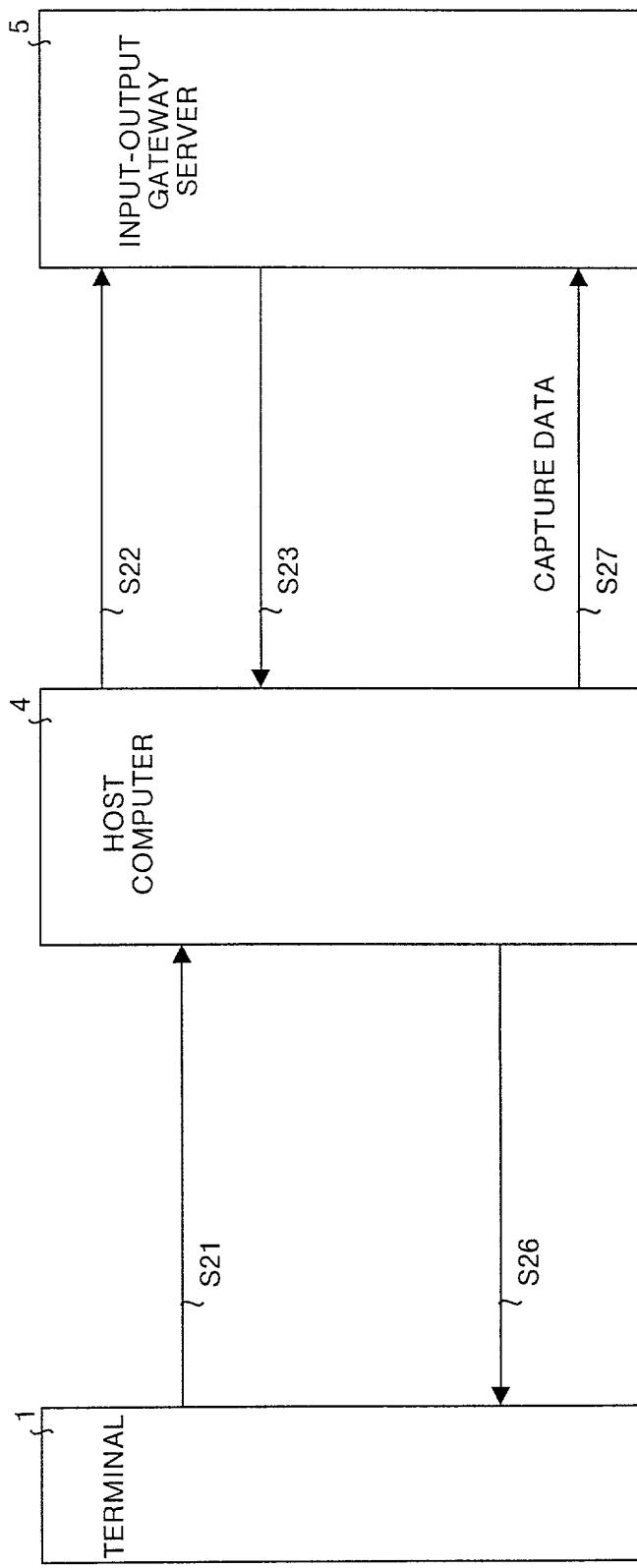


FIG.8

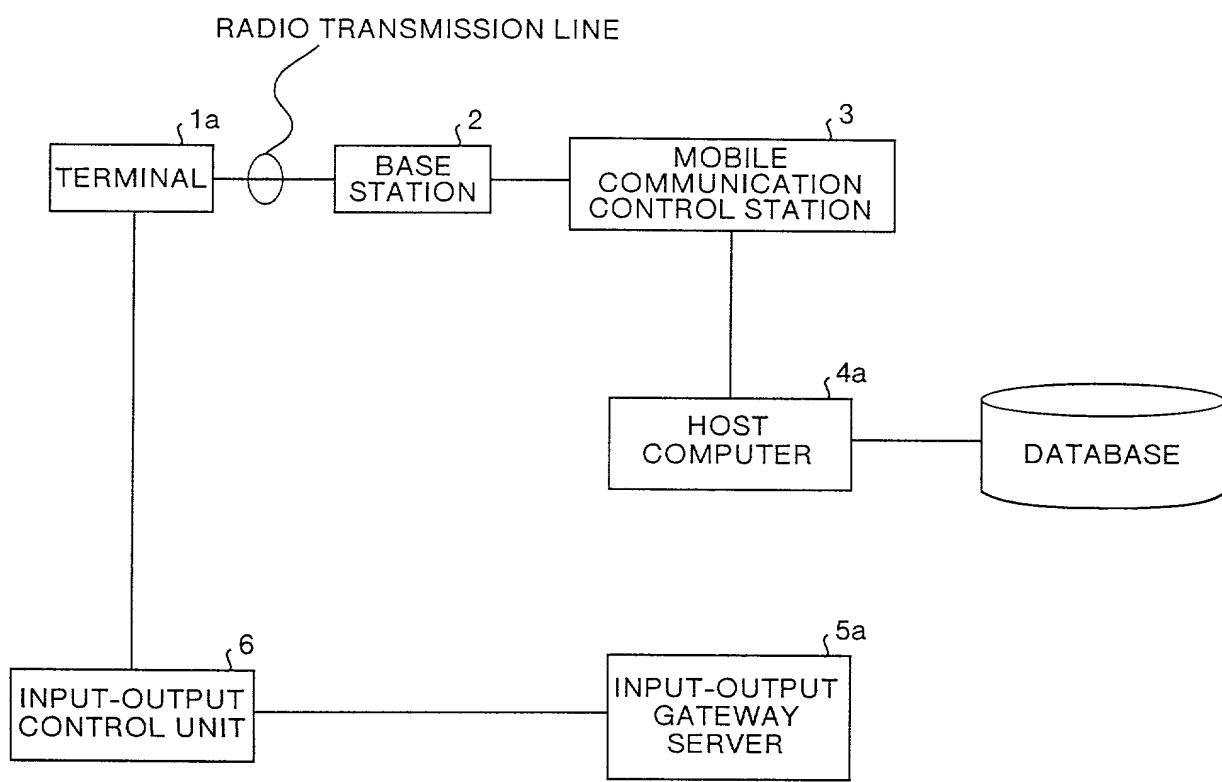


FIG.9

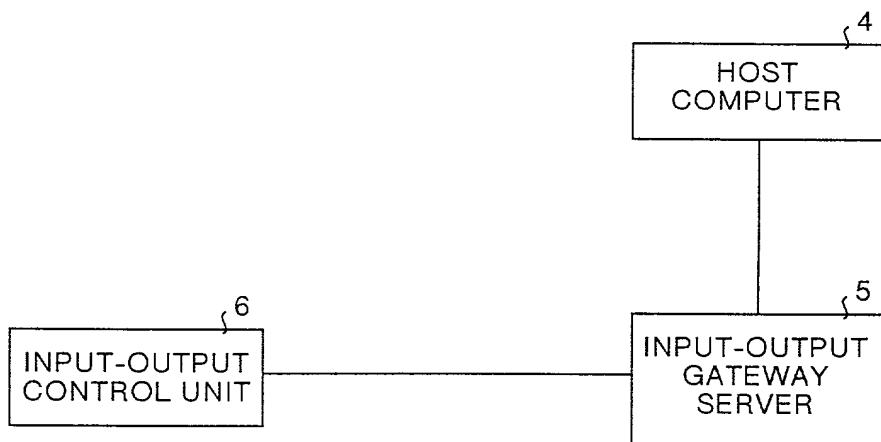


FIG.10

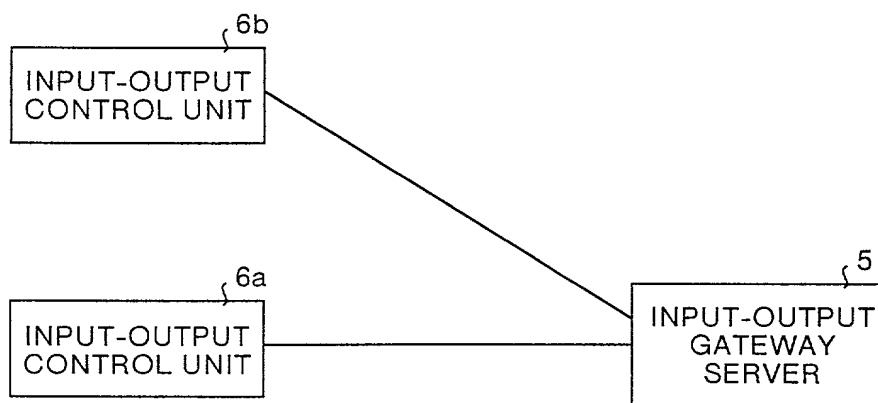


FIG.11

